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How Could I Create A Project Based Learning Unit To Help Third Grade Students Develop 21st Century Skills In A Chinese Immersion School

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PROJECT BASED LEARNING:

HOW COULD I CREATE A PROJECT BASED LEARNING UNIT TO HELP THIRD GRADE STUDENTS DEVELOP 21ST CENTURY SKILLS IN A CHINESE IMMERSION SCHOOL

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CHAPTER ONE

Introduction

Introduction

I am a third grade Chinese Immersion teacher, and I teach in one of the Saint Paul Public School Districts. For those who don't know a Chinese Immersion teacher, I teach all content knowledge in Chinese, rather than in English. When I was getting my teacher license in Wisconsin, I did not know I would work in an immersion school setting of my home language-Chinese. My first year, the 2014-2015 school year, was a difficult year because I was the only third grade Chinese teacher in the school, and I needed to prepare all content material in the target language during the weekends. Help from first, second grade teacher, and my mentor made Chinese reading and writing easier to learn. However, science and social studies were my teaching weakness, because I was lacking in training and teaching experience. Like other teachers in the district, I had prep time too. My prep time was the period of time when my third graders went to English class. I used a lot of prep time and time during the weekends to translate and prepare teaching materials from FOSS kits for science. The translation process was dry, and the translated worksheets were hard for students to understand and use. The second year, the 2015-2016 school year, was better than the first year, because my principal asked the science teacher, from the school we shared a building with, to teach science for both schools. During the 2015-2016 school year, my school principal pushed us to create a STEM unit with help from a faculty from a University, because my Chinese Immersion School is a STEM school. We need to show others that our school curriculum is integrated with Science, Technology, Engineering and

Mathematics. Therefore, I adapted third grade EIE unit on membrane to create my own greenhouse unit. At the end of the 2015-2016 school year, my school principal decided to push project based learning in the 2016-2017 school year, because she researched that project learning would help our students to gain 21st century skills. During the curriculum writing week, each grade drafted their project based learning units. This school year, I taught two project based learning units, one was on Community, the other one was the greenhouse unit. When teachers started teaching their created project based learning units, many teachers showed frustrations. Meanwhile, I started to think about "what really is the project based learning?" and "how to teach students 21st century skills?". All these experiences have led me to my research question: *How could I create a project based learning unit that help third grade students develop 21st century skills?*

Rationale

The reason why I chose to pursue the topic of project based learning was from a discussion with a first grade and a second grade teacher. The first grade team created a project based unit on the Chinese Great Wall. They planned to integrate a science unit on kinds of rocks to the Great Wall unit. However, one of the first grade teachers believed that project based learning's goal is to solve a real world problem, rather than research something that has already been created. She believed that the purpose of project based learning was to use these teachers created units to let the world make more sense to students. After that, I revisited the created units, and I noticed that some units do not make sense to me, because some units do not solve a real world problem. Therefore, my hope is that my research will help teachers develop their own project based learning units after reading this paper.

Context

I understood why my school principal wanted us to created project based learning units. She wanted students to gain 21st century skills. The framework of 21st century skills describe "the skills, knowledge and expertise students must master to succeed in work and life; it is a blend of content knowledge, specific skills, expertise and literacies." ("P21 Framework Definitions", 2009) 21st century skills includes critical thinking, creativity, communication, and collaboration. Problem solving skills in critical thinking is the ability to solve a real world complex problem with a designed solution. Creativity is the ability to work or think the solution either in a technology enriched environment or a non-technology environment. Communication is the ability to present student's thinking, and collaboration is the ability to work together with partners through the problem-solving process (Crockett, 2016). Those are the important skills that a lot of professionals in different areas are currently using and mastering. When I was rewriting my first project based learning unit on community, I started the project with finding the problem. I brought my students to walk around the neighborhood to check what we already have. They found a lot of houses and apartments. They saw a gas station and different restaurants. They practiced map skills with the first lesson. The second lesson I planned was to bring third graders to do a survey at an university campus. The survey was created by me. However, I noticed that it would be more student-oriented if the survey was created by students. My school principal also gave me a similar suggestion. When students came back to the classroom, students were asked to use math graph skills to create a graph based on the survey results. After that, students worked on their proposal and project. Students were asked to make a presentation or imovie to show their proposals. After this project, I noticed that there are some key elements in

project based learning, such as finding problems, research, and finding solutions. During the learning process, students were able to connect math, technology, social studies, and literacy to their learning. I felt that project based learning should start from a problem. I shared my thoughts with the first grade teacher, and she also thinks that the community project makes sense and also solves real world problems. That's the reason I want to focus my capstone project on creating a project based learning units with 21st century skills.

Summary

Project Based Learning will be the trend for k-12 curriculum, especially primary elementary level. It will connect Common Core Standards from different content areas and also 21st century skills components. No matter what, I need to create project based learning units with 21st century skills, involving problem solving skills. Students deserve a better created project based learning unit that can develop their 21st critical thinking, creativity, communication, and collaboration. My belief in teaching is that it is important to let students find the problem in the world and find ways to solve it. 21st century teaching should be student-oriented with student's choice. The purpose of this project is to create project based learning units that help primary elementary students master 21st century skills. The next chapter includes a literature review of research and article done on the project based learning. The literature review will not only compare different project based learning methods, but also connect the importance of 21st century skills.

CHAPTER TWO

Literature Review

Introduction

The purpose of this chapter is to discuss literature that supports my project on creating units that integrate project based learning in third grade curriculum that allows students to have 21st Century skills, defined as "communication skills, technological savvy, a global view, collaborative practices, digital skills, and more innovative application" (Geisinger, 2016, p.246). This chapter will describe the definition, benefits and challenges of project based learning for teachers, and the practices of project based learning in different countries. In this chapter, project based learning and 21st century skills will be defined. How project based learning supports 21st century skills will be described in this chapter. Common core state standards and American Council on the Teaching of Foreign Languages(ACTFL) Proficiency Scale will be described. Additionally, I will discuss how project based learning fits into the k-12 curriculum for world learners and make the claim that project based learning is necessary for k-12 world learners. I conclude with a discussion about how inadequate teacher preparation remains a challenge in this field, let alone Project-based learning with a 21st century focus. Teacher educators or curriculum specialists don't provide enough useful and relevant professional learning experiences for the immersion staff. Therefore, the purpose of my project is focused on how to implement PBL in Chinese immersion curriculum. I hope this chapter will help readers to have a better understanding of my capstone project question: How could I create project based learning units to help third grade students develop 21st century skills in a Chinese Immersion school?

Project Based Learning

Project based learning is a learning approach that starts with a real world problem or a driven question. Students will use knowledge to investigate the problem and find solutions during the learner-oriented learning process. Hung (as cited in Hung, 2016) explained that project based learning was originally formulated to address the issue of students' inability to apply knowledge learned and solve problems in real-world situation. Confucius and Aristotle were early proponents of learning by doing. In The Analects of Confucius, the original work was translated in English by Arthur Waley (1938), "I hear and I forget. I see and I remember. I do and I understand." One of John Dewey's quotes also expressed that learning and doing are correlated. "Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking; learning naturally results." John Dewey started the idea of "learning by doing" by challenging the traditional view of the student as a passive recipient of knowledge (Boss, 2011). In Project based learning units, students will develop the ability to solve real-world problems. Problems will trigger students' motivation in learning, and students will take initiative in studying content knowledge.

Hung (2016) explained that, in solving an authentic real-world program from a professional level, the abstract content knowledge will carry more meaning when it is involved in the problem. Students' learning and understanding on newly learned knowledge will get to a much deeper level when students are personally involved in working on a problem. Hung (2016) believed that "problems not only trigger learning, but also afford the entire learning process of PBL."(p. 2) Larmer and Mergendoller (2010) explained seven essentials for project based learning, which include a need to know, a driving question, student voice and choice, 21st century

skills, inquiry and innovation, feedback and revision, and a publicly presented product.

The definition of project based learning

What is project based learning? In the article of The Negotiated Project Approach: "Project- Based Learning without Leaving the Standards Behind, projects are defined as in-depth investigations that involve students in design and investigative activities and that culminate in a final project or debriefing event" (as cited in Mitchell, Foulger, Wetzel & Rathkey, 2008). There is more than half a century history using project based learning as a practical teaching approach. It was adopted in the areas of medicine, engineering, economics, and other disciplines. Students are challenged to use problem solving skills to problem solve and simulate a real life situation with project based learning strategy (Boss, 2011). Although problems are defined in advance by the instructor, these problems are driven questions that are more likely to be open-end questions. According to the history of project- based learning, medical students used project based learning to simulate the real life situation to diagnose and treat students. Later, they applied the diagnosis and treatment to help real patients (Boss, 2011). The project based learning provided a practical learning experience, which is different from lecture lessons. Unlike textbook-driven instruction, project-based learning lets the student take the responsibility in asking questions and discovering answers.

Benefits and Challenges of Project Based Learning Approach

Benefits. Some suggest that the project based learning approach develops children's higher level thinking skills, which include problem solving, planning, and self-monitoring. Actively engaged students will apply and transfer conceptual content knowledge across a variety of learning environments to solve the problem. There will be a positive effect on students' dispositions and

self-esteem. Katz found that students in project-based Reggio Emilia preschools in Italy demonstrated habits of mind such as curiosity, reflection, and concern for others' perspectives. The way children feel about themselves, has also been found to improve through project work (as cited in Mitchell, Foulger, Wetzel & Rathkey, 2008).

In Hong Kong, several psychology researchers conducted research on the relationship between collective- and self-efficacy in project based learning process. Cheng, Lam and Chan (2008) found that high and low achievers were able to benefit when group processes were of high quality. In the research, they mentioned how Asian countries educational reform and 21st century skills are related. Meanwhile, the school system shifted from teacher-centered to student-centered (Cheng, Lam, & Chan, 2008).

> "It is propelled by a strong demand from society that students should learn how to meet the challenges of a knowledge-based and fast-changing society. Schools are now required to teach not only academic subject area knowledge but also generic skills to students. These skills include collaboration, communication and problem-solving skills" (Cheng, Lam, & Chan, 2008, pg. 206).

Hong Kong's government has a very positive opinion of project based learning. "Project-based learning is regarded as one of the key tasks in promoting students; generic skills in learning, it is described as a teaching strategy that can 'enable students to connect knowledge, skills, values and attitudes and to construct knowledge through a variety of learning experience' (Curriculum Development Council, 2001)" (Cheng, Lam, & Chan, 2008). Heterogeneous grouping for small group work lead to a debate. Some researchers believe that "under heterogeneous group, low achievers can get assistance, encouragement and stimulation from

high achievers; while high achievers can improve their cognitive abilities and presentation skills through explaining and elaborating concepts to low achievers." (pg. 206) However, some researchers argued that high, average and low achievers gained equal benefits in heterogeneous grouping. "When high achievers were grouped homogeneously, they would interact less effectively as they assumed that everyone in the group should have understood the materials. When low achievers were grouped homogeneously, they would have insufficient ability to help each other to learn" (as cited in Cheng, Lam, & Chan, 2008, pg.207).

After their research, Cheng, Lam, & Chan (2008) found that self-efficacy was higher than collective-efficacy when the group had high achieving students. They also found that collective-efficacy was higher than self-efficacy when the group had low achieving students. Cheng, Lam, & Chan also found Group processes was corresponding to collective efficacy and self-efficacy. (Cheng, Lam, &Chan, 2008, pg. 214). The figure below showed the student achievement in their research result. (pg.216)

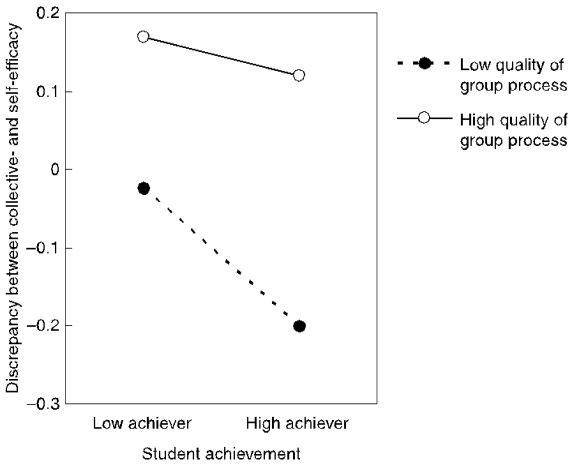

Figure I. Discrepancy between collective- and self-efficacy as a function of the quality of group process by student achievement interaction. Adapted from "When high achievers and low

achievers work in the same group: The roles of group heterogeneity and processes in project-based learning," by Cheng, R. W., Lam, S., & Chan, J. C., 2008, British Journal of Educational Psychology, 78(2), p. 216. Copyright 2008 by the British Journal of Educational Psychology.

The research found that, during project based learning, students with high quality of group process will increase both high and low achievers with higher collective-efficacy than self-efficacy. (Cheng, Lam, & Chan, 2008, pg. 216) The study revealed the importance of group processes in project based learning and the benefits of integrating project based learning for lower and higher achievers.

Challenges. Although the benefits of using the project approach are numerous, many educators were resistant to adopting project-based teaching methods. The lack of clarity regarding how to plan for projects, to guide children's inquiries and investigations and to assess learning has proven to be a major obstacle in adopting project-based learning, particularly for novice teachers. (Clark, 2006) In Estonia, Microsoft, Partners in Learning and Estonian schools formed the Tiger Leap Foundation (TLF) to help with the strategy, planning, and all tactical matters related to project based learning. The TLF provide teachers with a two-day training session in the use of the curriculum in the classroom. (Weatherby, 2007) In order to solve the challenge, Hong Kong's government provided teachers with free downloads by teachers as a resource to complement their existing curriculum. Microsoft's academic program manager in Hong Kong commented that "the curricula currently available for primary school is either purchased from third-party publishers and developed by the teachers themselves." (Weatherby, 2007) To increase the accessibility, project based learning are more likely to be applied in the teaching, and it will maximally release the pressure from teachers.

Project based learning is a learning approach that starts with a real world problem, and it

also provides students an opportunity to utilize all the content knowledge to investigate the problem. It is a learner-centered learning approach. Project based learning was originally used for medical students to diagnose simulated patient situation. The benefits of project based learning are developing higher level thinking, collaboration, and communication skills. The challenge that most teachers are facing now is the accessibility of the project based learning curriculums. In order to promote project based learning, the accessibility of project curriculums are very important for teachers to implement this approach. In the next section, academic rigor and 21st century skills will also be discussed to show the importance of implementing project based learning.

The Relationship Between Project Based Learning and 21st Century Skills

Academic Rigor

Academic rigor allowed students to be challenged with higher thinking level. Rigor helps students develop higher order thinking to understand complex and rich content. (Matsumura, Slater, & Crosson, 2008) Some researchers believed that project based learning can "incorporate the key aspects of academic rigor within the structure of an extended investigation centered on solving a key problem, and, according to some authors, an increased emphasis on student choice." (Edmunds, Arshavsky, Glennie, Charles, & Rice, 2017) As shown below, Figure II showed the relationship of Rigor and project based learning.

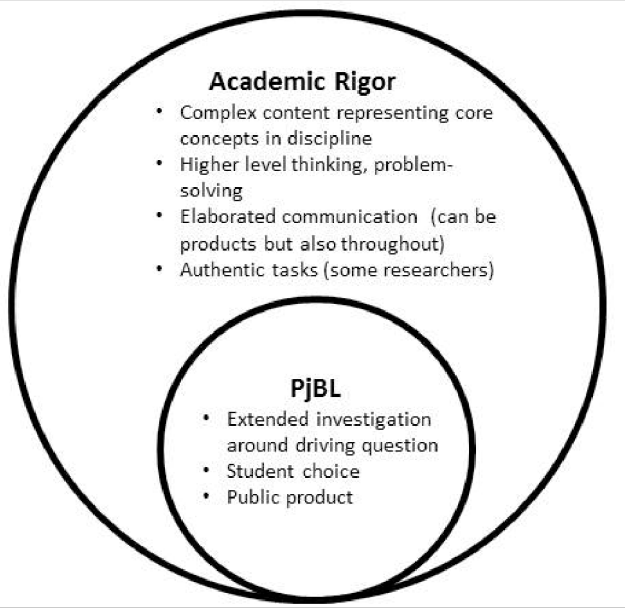

Figure II. Relationship of Academic Rigor and Project Based Learning. Adapted from "The relationship between project-based learning and rigor in STEM-focused high schools," by Edmunds, J., Arshavsky, N., Glennie, E., Charles, K., & Rice, O., 2017, Interdisciplinary Journal of Problem-Based Learning, 11(1). Copyright 2017 by Interdisciplinary Journal of Problem-Based Learning.

Edmunds, Arshavsky, Glennie, Charles, & Rice (2017) found the co-occurrence of rigor and project based learning from three perspectives, which include perspective from students, teacher, and external observer. They found that higher implementation increased higher rigor. They also found that, with low implementation, some students still responded the rigor is high. Projects are presented as rigor to student's understanding. The study also showed similar results in teachers' perspectives. They found that teachers tended to report high level of rigor with high implementation of projects. In Edmunds and his researchers' study, they also include external observer to provide a fair understanding of the relationship between implementation and rigor. The data showed a similar pattern. They found that teachers who scored higher on rigor are the

teachers who implemented projects (Edmunds, Arshavsky, Glennie, Charles, & Rice, 2017). Based on the study results, the perspectives from teachers, students and external observers are similar. The higher the implementation of the projects, the higher the rigor.

21st Century Skills

The relationship between Project based learning and academic rigor has been explained above. 21st century skills will also support project based learning for 21st century learners. Project based learning is often implemented in science, technology, engineering and mathematics settings, and the majority of the research concerns project based learning in math, science, or technology-oriented classrooms (Edmunds, Arshavsky, Glennie, Charles, & Rice, 2017). With using project-based learning as authentic learning, it allows students to build expertise in 21st century skills. Schools in Hong Kong have found that teaching 21st-century skills and integrating technology into learning can be a powerful way to attract students, as parents see their children learning relevant skills and staying engaged in these schools (Weatherby, 2007). 21st-century skills are the trend of 21st century education. There are several skills included in 21st century skills, such as "communication skills, technological savvy, a global view, collaborative practices, digital skills, and more innovative application" (Geisinger, 2016). "Collaboration skills, teamwork skills, and cross-cultural sensitivity are needed as components of problems solving" (Geisinger, 2016). The framework of 21st century skills describe "the skills, knowledge and expertise students must master to succeed in work and life; it is a blend of content knowledge, specific skills, expertise and literacies." ("P21 Framework Definitions", 2009) 21st century skills includes critical thinking, creativity, communication, and collaboration. Problem solving skills is the ability to solve a real world complex problem with a designed solution. Creativity is

the ability to work or think the solution either in a technology enriched environment or a non-technology environment. Communication is the ability to present student's thinking, and collaboration is the ability to work together with partners through the problem-solving process. (Crockett, 2016)

Technology and Engagement

For the 21st century learner, technology is considered one of the vital 21st literacy skills. ("21st century skills definition. ,2013") When students develop the four C's in critical thinking, creativity, communication, and collaboration, Blair discovered that "effective application of these vital skills in a technology- infused life and workplace requires acquiring them in a technology-infused learning environment" (Blair, 2012). Many educators integrate technology in learning in everyday teaching. According to *Using Pokeman GO to teach integrative STEM*, Bartholomew addressed how the popular game should be integrated with teaching. In his article, he used Pokeman GO as an example to show how games, apps, and merging technologies can be used in teaching Science, Technology, Engineering, and Math. In Figure III., Bartholomew (2017) showed potential contents that can go with Pokeman GO app.

Science	▪ In the app, certain Pokémon interact with other Pokémon in specific ways. Teachers could use these characteristics to introduce similar traits and qualities displayed by local animals. ▪ Pokémon evolve over time into increasingly powerful, distinct, and unique creatures. This process could provide teachers an opportunity to discuss evolution, its impact on a variety of species, and how evolution takes place. ▪ Pokémon hatch from eggs—teachers can talk about the lifecycle and incubation time of eggs in relation to a variety of amphibians, fowl, and fish. ▪ Pokémon live in different habitats and are classified in different ways (e.g., fire-type, water-type, plant-type, etc.). Teachers can use Pokémon to introduce habitat differences and classifications systems for flora and fauna. ▪ Students can use hashtags: #PokeBlitz and #PokemonIRL. These hashtags started as users posted pictures of interesting plants and animals they encountered while searching for Pokémon. Scientists have begun helping users identify these plants and animals by providing their correct name, species, and information through replies on Twitter using the same hashtags.
Technology	▪ Users can upload pictures at locations where Pokémon were caught to Google Street View 360 degrees and discuss the interactive mapping software involved with Google Street View 360 degrees. ▪ Teachers can help students understand augmented reality software, its applications, and its potential. Some companies have even used this opportunity to help students learn coding principles (see: https://app.vidcode.io/project/poke-go). ▪ GPS and digital mapping techniques can be discussed and attempted by students. ▪ Students can learn about geocaching and incorporate a geocaching challenge into their Pokémon hunting.
Engineering	▪ Potential opportunities in software engineering can be discussed with students. ▪ Students will likely encounter a variety of structures while searching for Pokémon—this could provide a starting point for a lesson on Civil Engineering. ▪ Students become increasingly familiar with maps and locations as they search for Pokémon—this could lead into a discussion of planning, construction, and engineering of roads, bridges, and tunnels.
Math	▪ Students can learn about and use probability as they battle with their Pokémon (when Pokémon battle, a Pokémon's CP [Combat Power] is taken into consideration. However, there are times when a lower CP Pokémon can still win—this probability could be calculated through in-class testing). ▪ Students can calculate distances during catching sessions. ▪ Students can calculate shortest distances between PokéStops. ▪ Students can compare and contrast Pokémon vital statistics (height, weight, measurements). ▪ Students learn about conversion (Pokémon GO only displays data in kilometers. Immediately following the release of the game, the number of searches relating to Km to Miles conversions on Google rose over 250%). ▪ Students can document the number and type of Pokémon they encounter each day—this could be used to talk about ratios or percentages.

Figure III. Potential Application of Pokeman GO App Related to STEM Education and Associated Principles and Content. Adapted from "Using pokeman GO to teach integrative STEM. Technology & Engineering Teacher", by Bartholomew, S. R., 2017, 76(5).

At the end of Bartholomew's feature article, he gave a conclusion on students' interests and teachers' work with Prensky and a quote from *Framework for 21st century learning*.

"Today's students are unlike any other generation of learners. (Prensky, 2007) Teachers

should be constantly adapting to leverage the interest, jobbies, and strengths of their students. As teachers work to bridge the connection between in- and out-of school learning, students will grow to meet the challenges of being a 21st century learner (Partnershop, 2011)." (as cited in Bartholomew, 2017)

As we go into the 21st century, there are humongous information and media communication coming to our daily life. Smart phones, tablets, and laptops are becoming absolutely necessary for our everyday living. In education, many schools have technology integration in the curriculum. Some school districts even have one-to-one ipad to students. Technology integration is also included in teacher's assessment. Many teachers attend training to learn interesting ways to involve students' learning and engagement. However, technology is still a tool, and it will never be a substitute for the guidance and care of classroom teachers. (Petropoulos, 2001) Technology is used by teachers to create open-ended projects that challenge students to take ownership for their own learning (Petropoulos, 2001) Nowadays, 21st century children are very good at technology, and the teacher's mission is to integrate it to the curriculum that meet 21st students' needs.

In K-12 education, project-based learning has evolved as a method of instruction that addresses core content through rigorous, relevant, hands-on learning. Projects tend to be more open-ended in problem-based learning, giving students more choice when it comes to demonstrating what they know. With implementing Project based learning, students will not only learn 21st century skills, but also have a great engagement with the k-12 standards during learning.

When an educator starts to plan a project based learning unit, students' interests and

standards are both relatively important during curriculum writing. In this way, educators can plan the topics that connect to the standards. The topics are also planned based on students' interest, rather than the standards only. This way will let educators to manipulate the standards to fit the needs of students' interests. In the article, *Project- Based Learning Engagement, Authenticity, and Collaboration on a Mission*, Rivero (2017) addressed that "project based learning has been referred to as authentic engagement" (p.5). In the 21st century, there are so many effective tools that support authentic engagement in a project based learning environment. Tools like HoverCam, Mentored Pathways, Mathalicious, eBackpack, Pathbrite, Seesaw, Google Drive, Google Docs, and so on have been adopted by teachers to address Common Core Standards, as well as challenge students to think critically about the world, and engage problem-solving with interests. (Rivero, 2017) In the article, *Project Power*, Duke (2015) wrote that, with project based learning instruction, students work extensively to respond to a real world need, and involve reading and writing, as well as developing content knowledge.

Research shows that project based learning provides academic rigor in education from the perspectives of students, teachers, and external observers (Edmunds, 2017). Project based learning helps students develop 21st skills, which include critical thinking, creativity, communication, and collaboration (p.2). Technology is considered as one of the 21st skills that 21st century learners need to acquire. With technology and project based learning, student's engagement has been increased. In the next session, Common core standards and ACTFL will be introduced to connect with project- based learning and k-12 curriculum for world language learners.

Common Core Standards and ACTFL Proficiency Scale

During lesson planning, Common Cores Standards are the guideline to keep teacher's lesson planning on the right track. In the early 1990s to 2000s, every state had developed or adopted its own learning standards to assure what students in grades 3-8 and high school should be able to do (CCSS, 2015). However, the standards that each state generated lacked standardization, so Common Core State Standards finally developed in 2009. Common Core Standards were prepared for college- and career- readiness. They outlined what students are expected to know and understand by the time they graduate from high school. Common Cores Standards also addressed expectations for elementary school through high school (CCSS, 2015). The Common Core State Standards define the rigorous skills and knowledge to ensure all students are prepared for academic college courses in English, mathematics, the sciences, the social sciences, and the humanities. The standards intend to set forward thinking goals for student performance based on evidence about what is required for success. Therefore, Common Core State Standards should be taken into consideration during curriculum writing for project based units.

For standardized Foreign language curriculum, the American Council on the Teaching of Foreign Languages (ACTFL) had developed 5 C's and standards. The Five Cs refers to communication, cultures, connections, comparisons, and communities. In the article of *Using Project- Based Instruction to Meet Foreign Language Standards*, Mikulec and Miller (2011) describes how Project Based instruction meets many ACTFL standards. Mikulec and Miller addressed the five Cs in the Figure IV (as cited in Mikulec and Miller, 2011) below.

Communication: Communicate in languages other than English.	**Standard 1.1:** Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions. **Standard 1.2:** Students understand and interpret written and spoken language on a variety of topics. **Standard 1.3:** Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.
Cultures: Gain knowledge and understanding of other cultures.	**Standard 2.1:** Students demonstrate an understanding of the relationship between the practices and perspectives of the culture studied. **Standard 2.2:** Students demonstrate an understanding of the relationship between the products and perspectives of the culture studied.
Connections: Connect with other disciplines and acquire information.	**Standard 3.1:** Students reinforce and further their knowledge of other disciplines through the foreign language. **Standard 3.2:** Students acquire information and recognize the distinctive viewpoints that are only available through the foreign language and its cultures.
Comparisons: Develop insight into the nature of language and culture.	**Standard 4.1:** Students demonstrate understanding of the nature of language through comparisons of the language studied and their own. **Standard 4.2:** Students demonstrate understanding of the concept of culture through comparisons of the cultures studied and their own.
Communities: Participate in multilingual communities at home and around the world.	**Standard 5.1:** Students use the language both within and beyond the school setting. **Standard 5.2:** Students show evidence of becoming lifelong learners by using the language for personal enjoyment and enrichment.

Figure IV. The ACTFL Five Cs and Standards. Adapted from "Using project-based instruction to meet foreign language standards," by Mikulec, E., & Miller, P. C., 2011, The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 84. Copyright 1996 American Council on the Teaching of Foreign Languages.

Mikulec and Miller (2017, p85) find that Project based Instruction requires careful planning to connect the standards and Project Based Instruction. They find that "the instructor must determine the goals and objectives of the course and decide how projects may help achieve these goals. Then language instructors must continually act as guides, ensuring that students are communicating in the target language and working on the tasks at hand, as well as answering questions and helping students be successful learners" (Mikulec and Miller, 2011).

Common core standards are the guideline for k-12 educators to know what they are expected to teach. ACTFL standards are the guideline for world language instructors to follow. With both standards, the adopted project based learning would be more reliable. Project based

learning approach has been widely adopted by many countries, and it is very popular to language immersion school and the world language learner. Project based learning is the best method to increase the opportunity of learning with language usage and communication in the academic setting. In the next section, world language and dual language immersion will be introduced as well as the success case of implementing project based learning in the language learning environment.

World Language and Dual Language Immersion

Due to the recent economic situation, more and more families send their children to learn second a language in language schools or immersion schools. Bilingual students are believed to be more competitive in the future globe marketplace. Students who are in a language immersion program, spend at least 50 percent of instructional time in the target language environment. Researchers have found that being bilingual makes people smarter. It can have a profound effect on the brain, improving cognitive skills not related to language and even shielding against dementia in old age. (Bhattacharjee, 2012)

According to *Partner-Language Learning Trajactories in Dual- Language Immersion: Evidence From an Urban District*, Burkhauser, Steele, Li, Slater, Bacon, and Miller (2016, pg. 416) addresses that, "in dual-language immersion programs, students receive general academic instruction in two languages from early grades onward. They include both two-way programs, in which about half of the students in a classroom are native speakers of each of the two classroom languages, and one-way programs, in which most students in the classroom are native speakers of English." In the article of *The Unique Skills and Traits of Principals in One-Way and Two-Way Dual Immersion Schools*, Rocque, Ferrin, Hite, and Randall (2016) also explain the

difference between One-Way and Two Way programs. They cited Christian and Lindholm-Leary's words, and addressed that "Two-way programs serve primarily native or heritage speakers and their families, often Hispanic native speakers, particularly in the schools that were studied. In one-way programs, the demographically predominant group usually is the most highly represented, and such programs are often treated as 'schools of choice' programs or programs that are more academically challenging due to at-risk factors such as poverty and first language literacy development" (pg. 815).

There are many beneficial reasons that show the advantages of dual-language program. Researchers find that "the language education community has long understood that students in dual-language immersion can perform as well as, if not better than, their peers on standardized tests of language arts and mathematics administered in English" (Burkhauser, Steele, Li, Slater, Bacon, and Miller, 2016). Bialystok and Craik mention that bilingualism "requires students to switch attention rapidly from one representational system to another, is correlated with enhanced cognitive skills and may therefore positively affect learning in a wide range of subject areas" (as cited in Burkhauser, Steele, Li, Slater, Bacon, and Miller, 2016, pg. 416).

With teaching project based learning in an immersion program, students will learn more terminology in different content areas. In the article, Using Project-Based Instruction to Meet Foreign Language Standards, Mikulec and Miller (2011) claimed that language instructors must continually act as guides, ensuring that students are communicating in the target language and working on the tasks at hand, as well as answering questions and helping students be successful learners. Sylvan (2016) posted a blog of *PBL Speaks Many Languages*. In the article, Sylvan showed that multilingual learners will be beneficial to the PBL lessons.

> MLL students can read in their native language papers (or listen to the radio or watch television, if they lack sufficient literacy or access to news periodicals). They can compare and contrast these viewpoints and provide authentic diversity to classroom discussions (Sylvan, 2016).

Valentino and Reardon found that ELs placed in a bilingual environment-be it dual-language immersion or other bilingual education programs- showed faster academic growth in English language arts than peers placed in monolingual English programs (as cited in Burkhauser, Steele, Li, Slater, Bacon, and Miller, 2016, pg.416, 417).

Both dual language program and project based learning are very successful in each area. Combining dual language programs and project based learning will effectively help students to develop 21st century needs. Project based learning has been applied worldwide. Many countries have adopted project based learning in elementary, middle, high school, or even college level. There are also many world language programs that have adopted project based learning for short term programs.

Successful cases for integrating project based learning with world languages

One high school in Japan integrates project based learning to solve real world issues. The high school has "Saturday courses", which have a variety of elective courses that are different from the standard high school curriculum. Students first study the basic knowledge at the preparation class. Then, students go to a developing country during the summer to think about current global issues, and students work to find a solution. In the *Project-based learning for international understanding*, students went to Thailand to see and learn about "the status and issues in the current support and cooperation efforts at the various facilities" (Otsuka &

Yamada).

> "They also engaged with the Thai locals through volunteer activities such as cleaning and providing food, and presentations by singing dancing, and making posters. Students collected their own thoughts based on their experiences and on their experiences, and on the final day visited the JICA Thailand Office in Bangkok and reported on the results of the trip before returning to Japan" (Otsuka & Yamada).

During the project process, students worked independently on their projects during Saturday courses to find solutions to the social issues in Thailand based on what they actually saw and experienced. The learning process was monitored and initiated by students themselves. The project based learning on Thailand created a real life case for students to explore. In the Vive Les Villages, a French immersion learning environment was created, as a summer camp, for students' learning by The Concordia Language Village (CLV) program.

The site created an authentic French environment from the moment students entered the village. For example, students will have a French name, check their English "luggage", exchange Euros, and find their cabins named after a French city, province… or another French-speaking country (Mambo& McGrath, 2005). Technology Projects, Radio Project, Video Projects were developed for "the villagers" to work in French. During the project based learning process, "Those who collaborated on this project brought a diversity of skills and learning styles and developed the ability to evaluate the quality of their own work. They took proud ownership of their shows and were motivated by their real audience- the other villagers who eagerly listen to the program." Through projects, these villagers collaborated in French, worked out their differences, and gave input on all projects. The language standards of communication were met.

- Engage in conversation, provide and obtain information, express feelings and emotions, and exchange opinions
- Understand and interpret written and spoken language on a variety of topics
- Present information, concepts, and ideas to an audience of listeners or readers on a variety of topics (Mambo& McGrath, 2005).

Mambo and McGrath find that students developed a facility for speaking freely and spontaneously. In addition, they find that students can have cultural and communicative payoff, when students are doing the project based learning in the language they are trying to learn. (pg.39)

In Japan, educators use project based learning activities to measure the effectiveness for short-term intensive English programs. The program is a seven-day intensive English course for juniors in the science and technology division of a large Japanese university. The Wikipedia Project, the Newspaper Project, the Small-Groups Video Project, and the Whole- Group Video Project were created to enable teachers and students to move beyond the limitations of traditional English curriculum. Foss, Carney, McDonald and Rooks (2008) found the following.

> By combining English learning with the development of other skills, projected-based learning enables EFL students to connect the English of the classroom to their own real-life interests. Another benefit of this approach is the final project. In addition to finishing the program with a grade and academic credits, students also all left with a tangible product of their work. In a world in which cooperative group efforts and achievement of tangible projects is often a measure of success and accomplishment, project-based

learning prepares students well for real world events. (pg. 16)

Those successful cases showed how a project based learning approach helped students' learning, collaboration, communication, and etc. Many countries and language programs adopted project based learning to make the problem-solving more authentic, interactive, and interesting. Technology plays a vital role in project based learning. Within 21st century skills, project based learning is getting more interesting and attractive to 21st century students. It is important for teachers to keep up with students in this generation.

Dual language instruction provided more academic challenge for students. Students received general academic knowledge in two languages from early grades. With project based learning, students learn terminology in the target language. There are many conversations happening in the project process, which effectively support students' literacy skills. From the successful cases, the Thailand project for Japanese high school students and the CLV program for summer camp students show the advantage of implementing project based learning. In those programs, students take initiative in learning and they practiced language and technology as well as solving real world problems.

How my project addresses the gap found within the research.

The cognitive benefits of learning a second language in early childhood are well known, as well as the project based learning process. Studies showed the increases of critical thinking skills, creativity, and flexibility. Over nearly half a century, language immersion programs have been proven to be the highly effective way to learn the target language. Accordingly, Mandarin immersion programs in the United States has strikingly increased in the past decade. Based on the 2017 National Chinese Language Conference, there were roughly 10 Mandarin dual-

language programs before 2009 and the number has swelled to over 200 by the spring of 2017. However, inadequate teacher preparation remains a challenge in this field, let alone Project-based learning with a STEM focus. Teacher educators or curriculum specialists didn't provide enough useful and relevant professional learning experiences for the immersion staff. Therefore, this paper is focused on how to implement PBL in Chinese immersion curriculum, it will be a great contribution to this field.

Summary

This chapter reviews literature on project based learning, 21st century skills, academic rigor, Common Core State Standards and engagement, and immersion programs. The project approach develops higher level thinking skills. In Hong Kong study, grouping heterogeneously will affect students collective- and self-efficacy. With higher quality of grouping, both low and high achiever students will benefit from project based learning process. The challenges of project based learning were also addressed in Estonia and Hong Kong. In the 21st century, communication, collaboration, problem-solving and technology are the important skills for students in this generation to acquire. The relationship between project based learning and rigor showed the high implementation correlated to high academic rigor. With meeting 21st students' needs, curriculum designing requires student's interest and popular trends. Teachers need to work continuously to keep up with 21st learners. ACTFL plays a very important role in project based learning planning. Project based learning ties with Common Core State Standards and ACTFL standards and helps teachers to create a student-centered and interesting curriculum. Students will apply 21st century skills during the learning process, which include problem-solving, integrating technology, teamwork, and etc. Dual language immersion also helps

learners' cognitive thinking. With project based learning, dual language immersion learning will maximally support students' learning. In addition, many programs and countries have been successfully adopting project based learning in their programs, which leads to great success. Gaps in researches reveals that there is not enough researches on project based learning in primary elementary level at Chinese Immersion program. Therefore, my research will fill the gap in project based learning area.

In the next chapter, background of my project will be addressed. My school situation will be clearly addressed. The purpose of this project is to help Chinese immersion teachers with designing and implementing project based learning instead of starting from scratch. In the next chapter, I will explain my project.

CHAPTER THREE

Project Description

Introduction

The purpose of this research was to answer the research question: *How could I create a project based learning unit to help third grade students develop 21st century skills in a Chinese Immersion school?* I am a third grade teacher and I am currently working on creating project based learning units for third grade students in my program. The goal is to make a project based learning unit more engaging with clear instruction for next school year. For this research, I intended to create a project based learning unit that meet language standards and third grade common core standards for science, technology, mathematics, social studies and literacy. When I am creating my community unit, I will provide students opportunities to find out what is missing in the community. Throughout the unit, students will investigate and collect data to determine the most important facility should be in the community. During the project based learning unit process, students will use the data they collected and observation notes to critically think the facility that they want to open. Students will also use their creativity to design the survey questions on the technology device to collect data for their decision making. The process requires whole group discussion and small group discussion. Students will work together to make decision, and explain why they think the facility is necessary to open.

After finishing my capstone project on the project based learning unit, I will be able to have a deep understanding of how to make a project based learning unit for language immersion students, which also integrate 21st century skills, ACTFL standards and Technology, which are

used by teachers to create open-ended projects that challenge students to take ownership for their own learning.

Overview

The project description chapter starts with theories used for supporting the project. Setting and participants are included in the second section. The third portion of Chapter 3 provides project description, rationale, and the timeline.

Project based learning Related Theories

Project based learning starts with a real world problem. The problem is a driven question, like an open-end question. (Boss, 2011) The problem will be to carry on student's learning in the unit. In order to frame the problem, it is important to motivate students to take ownership of questions and pursue the solutions (Marx, Blumenfeld, Krajcik, & Soloway, 1997). Larmer and Mergendoller (2010) explained seven essentials for project based learning, which include a need to know, a driving question, student voice and choice, 21st century skills, inquiry and innovation, feedback and revision, and a publicly presented product. Those will be the essentials for my capstone project question: How could I create project based learning units to help third grade students develop 21st century skills in a Chinese Immersion school?

Setting and Participants

Setting

The setting of this project will be applied to third grade students in a mandarin immersion elementary school. The school district itself is the state's largest school district in Minnesota. The school district is located in Saint Paul, Minnesota. There are approximately 38,380 students in the district, which includes 48 elementary schools, 8 middle school, 7 high schools, 3

alternative schools, and one special education school. There are over 6,500 teachers and staff. The mandarin immersion elementary school has approximately 187 students. Of these 187 students, 17% of students have two or more races. 12 % of students are Hispanic, 31% of students are Asian, 6% of students are Black, and 34% of students are white. According to the data from the Minnesota Report Card, the school has 23 Hispanic and Latino students, 57 Asian students, 12 Black and African American students, 63 white students, and 32 of two or more races students. Based on 2017 Enrollment data, 31% of students are English Learners, and 5% of students need special education. Free/Reduced Priced Lunch makes up 26% of the students, which is 49 students. Based on the MCA test, the school received 100% on math in both 2015 and 2016. English proficiency has increased from 66.7% in 2015 to 83.3% in 2016. Table I shows the demographics of school students.

Table I. Racial Demographics of Mandarin Immersion Elementary School and 2016-2017 Third-Grade Classroom

Race	Percentage in the program	Percentage in 2016-2017 third grade class
White	34%	43%
Latino/ Hispanic	13%	9%
Asian/ Pacific Islander	31%	35%
African American	6%	4%
American Indian/ Alaska Natives	0%	0%
Two or more races	17%	7%

Note. Adapted from Minnesota Report Card.

Participants

The intended audience for this project is third grade students in 2017-2018. Since I don't have the demographics for third grade students in 2017-2018, I will use the third grade students' demographics in 2016-2017. There are 23 students in my current classroom. Of the 23 students, there are 14 girls and 8 boys. The demographics of the class include 35% Asian students, 4% of Black students, 9% of Hispanic students, 43% of White students, and 9% of students with two or more races. Of 23 students, 87% are tested as gifted and talented, 34% are identified as English Language Learners.

The other participant in this project is the third grade teacher, which is me. Since I am the only third grade teacher in the program, I will be the participant A that uses the project based learning units. I have been in the program for 3 years, and I understand the standards for both common core and ACTFL. I understand the expectation for third grade in academic learning and language. I understand the importance of ethics, so no individual's name will be mentioned in the project.

Project Description

My plan for the project is to create a project based learning project for third grade students. The created unit will match standards and will be added to third grade curriculum. The unit will integrate target language, language arts, technology, social studies, and math. The unit will focus on social studies, which will also integrate with reading, writing, and math. The unit will start with a driven question, and each lesson will be driving by a question as well.

Content Description

In the unit, students will start with a survey and a walking observation field trip. After

that, students will find what is missing in the community and design a shop or facility in the community. During the design, students will find the location, decide what kind of shop or facility they should open, and understand what customers they will face. Furthermore, they will understand how to calculate sales tax, and how taxes support the community.

Project based learning Template

In the community project, there are several main elements, which include project idea, driving question, standards, 21st century skills, assessment, materials, and procedures. For unit planning, I will use the lesson plan template that I created for the project based learning units.

Figure V. Project Based Learning Lesson Plan Template

Project Design Template

Project Title: **Duration:**

Subject: **Grade:**

Project Idea: Summary of the issue, Challenge, Investigation, or Problem

Driving Question: State the driving question or problem statement for the project. The statement should encompass all product content and outcomes, and provide a central focus for student inquiry. Be sure you pose an authentic problem or significant question that engages students and requires core subject knowledge to solve or answer.

Common Core standards:

Language objectives/standards:

21st Century skills:

Critical thinking _____	**creativity _____**
communication _____	**collaboration _____**

Assessment:

Rubric(s) I will use: (Check all that apply.)	Collaboration		Written Communication	
	Critical Thinking & Problem Solving		Content Knowledge	
	Oral Communication		Other	
Other classroom assessments for learning: (Check all that apply)	Quizzes/ tests		Practice presentations	
	Self-evaluation		Notes	
	Peer evaluation		Checklists/observations	
	Online tests and exams		Concept maps	
Reflections: (Check all that apply)	Survey		Focus Group	
	Discussion		Task Management Chart	
	Journal Writing/ Learning Log		Other	

Materials:

Procedure:

Figure V. Template for lesson plans for project.

Rationale

During the project based learning unit, students will take initiative in learning the content knowledge. The target language and 21st century skills will be using during each project. Students will be able to explain and implement their understanding about different topics in the community project. With a clear instruction, mandarin immersion teachers can use the project

based learning lesson plans to teach their own class. In that case, the burden of planning will be taken away from the third grade immersion teacher. Students will also benefit from the project based learning units.

Project Evaluation

The participants will use the Project Design Rubric (see appendix A) from Bie.org to evaluate the project based learning units. the Project Design Rubric was created by Buck Institute for education in 2017.

Timeline

The following table IV will help me to monitor my project progress.

Figure VI. Timeline for Project based learning

peer reviewer	May- July, 2017
Write chapter 4 and project	July, 2017
Rewrite/ Revise	July-August, 2017
Complete all pieces of the capstone	The end of July/ The beginning of August, 2017
Round Table Presentation	August, 2017
Apply the project	2017-2018 school year

Figure VI. Author's timeline for preparing, implementing, and assessing capstone project.

Summary

Chapter 3 continued to explain the importance of project based learning. The setting, audience and participants involved in the project based learning unit are provided at the beginning of this chapter. Project description has explained the content and lesson plan template for my project based learning unit on community.

Chapter four will contain the third grade project based unit on Community. I will be giving detailed lesson plans for the community unit with examples provided from the study. .

Strengths and limitations of my project will be discussed in the next chapter. In the chapter 4, I will explain how the unit has been created and also future plan for implementation.

CHAPTER FOUR

Conclusion

Introduction

The purpose of this research is to answer the research question: *How could I create a project based learning unit to help third grade students develop 21st century skills in a Chinese Immersion school?* The aim is to provide teachers with a guidance for creating a project based learning unit.

In my chapter one, I have explained my motivation behind the research, and my frustration on teaching project based learning unit. I reflected the confusion on previously created projects and projects from other grade levels. Then, I discussed the literature that related to project based learning, 21st century skills, and standards that best supported my project based learning unit in Chapter two.

In the second chapter, the definition, benefits and challenges of project based learning for teachers, and the practices of project based learning in different countries were discussed. 21st-Century skills and different standards had been included in Chapter two to support project based learning curriculum writing. Many project based learning activities in other language had been shared, which drive the research to explore a project based learning unit for a Chinese Immersion setting. One of the findings from the literature review that drove my lesson writing is that project based learning starts with a real world problem. The problem is a driven question, like an open-end question (Boss, 2011). The problem will be to carry on student's learning in the unit. In order to frame the problem, it is important to motivate students to take ownership of questions

and pursue the solutions (Marx, Blumenfeld, Krajcik, & Soloway, 1997). Larmer and Mergendoller (2010) explained seven essentials for project based learning, which include a need to know, a driving question, student voice and choice, 21st century skills, inquiry and innovation, feedback and revision, and a publicly presented product. Those are the essentials to help me create my own project based learning unit.

The third chapter included the setting, audience and participants involved in the project based learning unit. The project description explained the content and lesson plan template for my project based learning unit on community. The evaluation for the project based learning is also included in the last section of Chapter Three.

Chapter Four will describe the process I took for creating the community unit from beginning to end with more details. The limitations and implications of the project will be shared in this chapter. My growth and future plans of the entire process will be reflected in this chapter as well.

Description of the Project on Marketing in Community

The idea for using Marketing in Community as one of the main subjects for the project based learning unit started with a frustration of teaching social studies and a conversation with first and second grade teachers. In my program, students learn about money in first grade, and will continue in second and third grade. In the past year, first grade teachers organize students to bring things from home and sell them in the classroom with fake money provided from their classroom teachers. Through the activity, students were able to understand the value of coins and dollars. In the second grade, the classroom teacher were designing a unit on market and wanted to bring students to visit a Chinese grocery store. Although the second grade teacher did have a

well-planned lesson yet, one of her focuses on the social studies is on market. Based on those information and social studies standards, I decided to create a project based learning unit that combined with third grade social studies standards, and also vertically aligned with first and second grade contents.

I wanted to ensure I answered my research question: *How could I create a project based learning unit to help third grade students develop 21st century skills in a Chinese Immersion school?* I decided to start my community unit with a real world problem. Like Boss (2011) explained in his article, the problem is a driven question, like an open-end question. It is the key to project based learning. In order to organize my planning, I decided to explore what is the real world problem around me and students. I walked around the community, and I saw some shops closed for business, others open for business. I saw gas stations, bookstores, different restaurants, apartments, and animal hospitals. I started to wonder about the relationships between each facility in this community. Then, I came across an idea of "how economics work in this community?"

After that, I looked at all the standards in social studies, and I have found students needed to be provided opportunities to explore the civic relationship between an individual and the community in the United States in which he or she lives, and the functions and funding of government. They also needed to be provided with chances to practice weighing the costs and benefits in making decisions, and examining the economic forces that influence interactions among individuals in a community. By looking at different standards, I was thinking how to logically connect individual social studies lessons into one unit that covers citizenship and government, as well as economics standards. Standards are simply guidelines, and these

guidelines will and should adjust and modify according to the needs of an individual student and the groups we teach (Alber, 2014). However, CCSS are the guidelines to keep teacher's lesson planning on the right track (CCSS, 2015). Therefore, I looked at all the state standards and ACTFL standards to see which standards might align well with my project based learning units. The language arts standards and math standards are integrated well into this project based learning unit are shown in the table below.

Figure VII: Social Studies, Language Arts CCSS, & ACTFL Standards

Standards	Content Knowledge
Minnesota K-12 Academic Standards	Social studies: 3.1.1.1.1 Identify ways people make a difference in the civic life of their communities, state, nation or world by work as individuals or groups to address a specific problem or need. 3.1.2.3.1 Explain the importance of civic discourse (including speaking, listening, voting and respecting diverse viewpoints) and the principles of majority rule and minority rights. 3.4.1.1.1 Use maps and Concepts of location (relative location Words and cardinal and intermediate directions) to describe places in one's community, the state of MN, the U.S. other world. 3.3.1.1.2 Create and interpret simple maps of places around the world, local to global; incorporate the "TODALS" map basics, as well as points, lines and colored areas to display spatial information. 3.2.3.5.1 Explain that producing any good or service requires resources; describe the resources needed to produce a specific good

	or service; explain why it is not possible to produce an unlimited amount of a good or service. 3.1.4.6.1 Describe the importance of the services provided by government; explain that they are funded through taxes and fees. 3.2.2.2.1 Describe income as the money earned from selling resources and expenditures as the money used to buy goods and services. 3.2.4.5.1 Explain that producing any good or service requires resources; describe the resources needed to produce a specific good or service; explain why it is not possible to produce an unlimited amount of a good or service. 3.2.4.5.2 Explain that consumers have two roles- as sellers of resources and buyers of goods and services; explain that produces have two roles- as sellers of goods and services and buyers of resources. Math: 3.4.1.1 Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units. 3.1.2.4 Multiplication & Division in the Real-World Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems. 4.1.1.5 Real-World & Mathematical Problems Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit

	whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.
Common Core State Standards	Speaking & Listening: CCSS.ELA-LITERACY.SL.3.3 Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. CCSS.ELA-LITERACY.SL.3.1.D Explain their own ideas and understanding in light of the discussion. Writing: CCSS.ELA-LITERACY.W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. CCSS.ELA-LITERACY.W.3.1.A Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons. CCSS.ELA-LITERACY.W.3.1.B Provide reasons that support the opinion. CCSS.ELA-LITERACY.W.3.1.C Use linking words and phrases (e.g., *because*, *therefore*, *since*, *for example*) to connect opinion and reasons. CCSS.ELA-LITERACY.W.3.1.D Provide a concluding statement or section.
ACTFL Standards	**Communication** - Communicate in

	Languages Other Than English **Standard 1.1:** Students engage in conversation, provide and obtain information, express feelings and emotions, and exchange opinions. **Standard 1.2:** Students understand and interpret written and spoken languages on a variety of topics. **Standard 1.3:** Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics. **Connections** - Connect With Other Disciplines and Acquire Information **Standard 3.1:** Students reinforce and further their knowledge of other disciplines through the foreign language. **Standard 3.2:** Students acquire information and recognize the distinctive viewpoints that are only available through the foreign language and its cultures. **Communities** - Participate in Multilingual Communities at Home and Around the World **Standard 5.1:** Students use the language both within and beyond the school setting. **Standard 5.2:** Students show evidence of becoming life-long learners by using the language for personal enjoyment and enrichment.

Figure VII. Adapted from Minnesota Department of Education. (2011). Minnesota K-12 academic standards: social studies. & "Using project-based instruction to meet foreign language standards," by Mikulec, E., & Miller, P. C., 2011, The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 84. Copyright 1996 American Council on the Teaching of Foreign Languages. & Common Core State Standards. (2015). Development process. *Common Core State Standards Initiative*.

The standards for the unit was modified several times. The list of standards above was the final edition. It is important to write down some related standards first, and come back to modify or add some standards later. The standards needed to be changed throughout the project based learning unit writing.

The activity planning took place at the same time I was looking at standards. Since the project based learning problem started with a real world problem, students are exposed to the real world situation and find problems spontaneously. Through the students created survey, students will be able to know people's needs in the community. Then, students analyze the data to find out the most wanted facility citizens want, and make a temporary decision. After observing the community, students will use the community map and observation notes to modify their decision on the facility that they want to open. For the community map, teachers need to use google map to take a screenshot of the community where your school is located. Then, teachers need to cover the name of facility, and let students explore facilities in the community. Then, students will start their proposal writing which includes their services and the cost after they have decided the facility they want to open. After that, sales tax will be introduced to students, and they will understand how government use taxes to support our community and our country. During the project, students will gradually understand how each facility co-exists with other facilities. As a way to assess student learning, I planned to provide students with an opportunity to demonstrate their proposal and evidence to students from different grade level. Students have choices to show their understanding. Therefore, they can use presentation or imovie to present their learning. As one of seven essentials for project based learning, student voice and choice needed to be

available (Larmer, 2010) The project based learning unit allows students to practice 21st Century skills of creativity, collaboration, critical thinking and communication.

In the project based learning unit planning, rubrics will help educators to stay on the right track on the curriculum writing. The Project Design Rubric (Appendix A) assists me to check my curriculum writing.

Limitations and Implications of the Project

Limitations of the Project

During the process of planning a project based learning unit on Marketing in Community, standards, big ideas, and driven question kept influencing the final project. During the curriculum writing, I have noticed that activity itself and standards cannot be separated during lesson planning. It is more important to start with an idea of what the lesson will look like, and use standards as a supplemental checklist to guide the curriculum writing. Before the project writing, I knew that the driven question will be the most challenging part to write, because a good driven question will help the lesson flow. Miller (2015) explained that a driving question helps to initiate and focus the inquiry. The goal is to ensure students are focused on the action and inquiry. Therefore, I have foreseen the challenge I will undergo during the writing process. For the implementation for the project, I have noticed that teachers who will adapt this unit to their own classroom need help from a chaperon or other staff because of the field trip safety. During the survey taking with using technology, the Wi-Fi connection may be limited, so students can take the survey in the school with students from different grade levels. In addition, students may use Chinese or English to ask people to take the survey. However, I think it is more important to have the experience of taking the survey, rather than the language usage during the

activity. When I was creating my project, the unexpected surprise is to delete some lessons that are not related to the standards and the topics. For example, I moved facility design as an extension activity because it's time consuming and not related to the main standards. I noticed that adding activities to the unit was easier, but taking some activities out was much harder.

Implications of the Project

During this research and project writing, it is important to go back and revisit my research question: *How could I create a project based learning unit that help third grade students develop 21st century skills?* My project provides an example to third grade teachers and elementary immersion teachers. My project helped to solve the lack of clarity on project planning, and how to guide children's inquiry and investigation. This project also provided immersion educators and specialists kick start unit lesson plans to start the project based learning unit. It will help novice teachers to understand the power of project based learning unit. In addition, students will be the beneficiary for the project based learning unit implementation, because they will be exposed to the real world problem and take the initiative in the learning process. If I would pursue another research topic, I would like to expand the project based unit third grade level to lower or upper elementary level. Therefore, more teachers and students will be beneficial to project based learning process.

Author's reflection

Through the research process, I have learned more information about project based learning process. I was exposed to the benefits and challenges of PBL implementation. I explored how to write a driving question and its importance. As a teacher, I looked through all the elementary standards to structure my own unit. As a researcher, I have noticed the gap among

project based learning process, elementary teachers, and immersion programs. As an educator, through the capstone project, I started to learn how to look at curriculums, as a curriculum writer, throughout the elementary levels, to connect the teaching contents vertically together.

Conclusion

After finishing the capstone project, I have noticed that my project aligns with the tenets of the framework of Hamline School of Education. The project helps me as an educator to promote equity in schools and society, to build communities of learners, construct knowledge and practice thoughtful inquiry and reflection. Through the project, I am able to pay attention to the demographics of my school and school district, and provide opportunities for students to have access in education. In the project based learning process, I learned to be a planner and a facilitator to assist student's learning. As a planner, I created opportunities for students to have access to inquiry the real world problems, and also use their learning to solve the problems. As a facilitator, I will stand behind the students to assist them, and provided helps when students needs it. After the project implemented, students will find their value in the community. By developing the unit, I learned to deepen my understandings on the standards, and overlook the standards as a role of curriculum writer. I was able to use the theories I studied and applied them into my project. I was also able to fill the gap in project based learning and immersion elementary programs. I will definitely continue to pursuit in project based learning to students and other teachers.

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Appendix A

Project Design Rubric

PROJECT DESIGN RUBRIC

Essential Project Design Element	Lacks Features of Effective PBL *The project has one or more of the following problems in each area:*	Needs Further Development *The project includes some features of effective PBL but has some weaknesses:*	Includes Features of Effective PBL *The project has the following strengths:*
Key Knowledge, Understanding & Success Skills	▶ Student learning goals are not clear and specific; the project is not focused on standards. ▶ The project does not explicitly target, assess, or scaffold the development of success skills.	▶ The project is focused on standards-derived knowledge and understanding, but it may target too few, too many, or less important goals. ▶ Success skills are targeted, but there may be too many to be adequately taught and assessed.	▶ The project is focused on teaching students specific and important knowledge, understanding, and skills derived from standards and central to academic subject areas. ▶ Important success skills are explicitly targeted to be taught and assessed, such as critical thinking/problem solving, collaboration, and self-management.
Challenging Problem or Question	▶ The project is not focused on a central problem or question (it may be more like a unit with several tasks); or the problem or question is too easily solved or answered to justify a project. ▶ The central problem or question is not framed by a driving question for the project, or it is seriously flawed, for example: – it has a single or simple answer. – it is not engaging to students (it sounds too complex or "academic" like it came from a textbook or appeals only to a teacher).	▶ The project is focused on a central problem or question, but the level of challenge might be inappropriate for the intended students. ▶ The driving question relates to the project but does not capture its central problem or question (it may be more like a theme). ▶ The driving question meets some of the criteria (in the Includes Features column) for an effective driving question, but lacks others.	▶ The project is focused on a central problem or question, at the appropriate level of challenge. ▶ The central problem or question is framed by a driving question for the project, which is: – open-ended; it will allow students to develop more than one reasonable answer. – understandable and inspiring to students. – aligned with learning goals; to answer it, students will need to gain the intended knowledge, understanding, and skills.
Sustained Inquiry	▶ The "project" is more like an activity or "hands-on" task, rather than an extended process of inquiry. ▶ There is no process for students to generate questions to guide inquiry.	▶ Inquiry is limited (it may be brief and only occur once or twice in the project; information-gathering is the main task; deeper questions are not asked). ▶ Students generate questions, but while some might be addressed, they are not used to guide inquiry and do not affect the path of the project.	▶ Inquiry is sustained over time and academically rigorous (students pose questions, gather & interpret data, develop and evaluate solutions or build evidence for answers, and ask further questions). ▶ Inquiry is driven by student-generated questions throughout the project.

Authenticity	▶ The project resembles traditional "schoolwork;" it lacks a real-world context, tasks and tools, does not make a real impact on the world or speak to students' personal interests.	▶ The project has some authentic features, but they may be limited or feel contrived.	▶ The project has an authentic context, involves real-world tasks, tools, and quality standards, makes a real impact on the world, and/or speaks to students' personal concerns, interests, or identities.
Student Voice & Choice	▶ Students are not given opportunities to express voice and choice affecting the content or process of the project. ▶ Students are expected to work too much on their own, without adequate guidance from the teacher and/or before they are capable.	▶ Students are given limited opportunities to express voice and choice, generally in less important matters (deciding how to divide tasks within a team or which website to use for research). ▶ Students work independently from the teacher to some extent, but they could do more on their own.	▶ Students have opportunities to express voice and choice on important matters (questions asked, texts and resources used, people to work with, products to be created, use of time, organization of tasks). ▶ Students have opportunities to take significant responsibility and work as independently from the teacher as is appropriate, with guidance.
Reflection	▶ Students and the teacher do not engage in reflection about what and how students learn or about the project's design and management.	▶ Students and teachers engage in some reflection during the project and after its culmination, but not regularly or in depth.	▶ Students and teachers engage in thoughtful, comprehensive reflection both during the project and after its culmination, about what and how students learn and the project's design and management.
Critique & Revision	▶ Students get only limited or irregular feedback about their products and work-in-progress, and only from teachers, not peers. ▶ Students do not know how or are not required to use feedback to revise and improve their work.	▶ Students are provided with opportunities to give and receive feedback about the quality of products and work-in-progress, but they may be unstructured or only occur once. ▶ Students look at or listen to feedback about the quality of their work, but do not substantially revise and improve it.	▶ Students are provided with regular, structured opportunities to give and receive feedback about the quality of their products and work-in-progress from peers, teachers, and if appropriate from others beyond the classroom. ▶ Students use feedback about their work to revise and improve it.
Public Product	▶ Students do not make their work public by presenting it to an audience or offering it to people beyond the classroom.	▶ Student work is made public only to classmates and the teacher. ▶ Students present products, but are not asked to explain how they worked and what they learned.	▶ Student work is made public by presenting or offering it to people beyond the classroom. ▶ Students are asked to publicly explain the reasoning behind choices they made, their inquiry process, how they worked, what they learned, etc.

Appendix B

Capstone Project Link

https://drive.google.com/drive/folders/0B6OVRUNBtPHQbkdwV2NjOGMzV1k?usp=sharing